

Amendment Under 37 C.F.R. § 1.116
Serial No. 10/031,872
Sughrue Ref: Q68112

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.-18. (canceled).

19. (currently amended): An antiroll and anti-pitch device for a vehicle having four ~~wheels sets of at least one wheel~~ provided in a two-by-two arrangement, comprising:

a central resilient element;

two central actuating elements, wherein the central resilient element is capable of opposing a force provided by a first of the central actuating elements and a force provided by a second of the central actuating elements;

four wheel actuating elements, each of the wheel actuating elements associated with one of the four ~~sets of at least one wheel~~ wheels and capable of providing a transmitting force ~~determined caused by~~ a vertical force to which the associated ~~set of at least one wheel~~ wheel is subjected; and

four wheel transforming elements;

wherein:

each of the wheel transforming elements is capable of transmitting the transmitting force from an associated one of the wheel actuating elements to one of the two central actuating elements,

the one of the central actuating elements that receives the transmitting force is capable of transmitting the transmitting force to an other of the wheel transforming elements,

the other of the wheel transforming elements is capable of transmitting the transmitting force to an other of the wheel actuating elements associated with a ~~set of at least one wheel~~ diagonally opposed to the ~~set of at least one wheel~~ that is subjected to the vertical force; and

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the other wheel actuating element is capable of providing a vertical force, which is analogous to the corresponding vertical force ~~to which the associated set of at least one wheel is subjected, to the diagonally opposed set of at least one wheel~~ based on the transmitting force.

20. (withdrawn): The device according to claim 19, wherein the central resilient element includes two resilient elements connected to a vehicle body through a balance beam having a central axis and two arms,

wherein the two arms of the balance beam are connected to the two resilient elements, respectively, and the central axis is connected to the vehicle body.

21. (currently amended): The device of claim 19, wherein:

the wheel actuating elements include ~~hydraulic or pneumatic circuits connected to single~~ fluid effect rams;

each of the wheel transforming elements includes a ~~hydraulic or pneumatic~~ fluid conduit, each of the conduits is connected to one of the two central actuating elements; and the central resilient element is a pneumatic cavity or a resilient component.

22. (currently amended): The device of claim 21, wherein:

each of the central actuating elements includes a pair of central devices, and

wherein the pair of central devices of the first central actuating element are connected ~~through a central conduit or built together, and the pair of central devices of the second central actuating element are connected through a central conduit or built together.~~

23. (currently amended): The device of claim 21, further comprising a central cylinder of a first diameter and two concentric side cylinders of a second diameter, and two double pistons, each double piston including a larger diameter piston provided in the central cylinder and a smaller diameter piston provided in one of the side cylinders; wherein:

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the pistons define a plurality of cavities within the central cylinder and two concentric side cylinders form three cavities, the cavities including a central cavity and two side cavities;
wherein the conduits are hydraulic conduits and are connected to the three cavities; and
the central resilient element opposes the movement of the larger diameter pistons within the central cavity.

24. (currently amended): The device of claim 22, further comprising a central cylinder of a first diameter and two concentric side cylinders of a second diameter, and two double pistons, each double piston including a larger diameter piston provided in the central cylinder and a smaller diameter piston provided in one of the side cylinders; wherein:

the pistons define a plurality of cavities within the central cylinder and two concentric side cylinders form three cavities, the cavities including a central cavity and two side cavities;
wherein the conduits are hydraulic conduits and are connected to the cavities; and the central resilient element opposes the movement of each of the larger diameter pistons within the central cavity.

25. (previously presented): The device of claim 22, wherein each of the pairs of central devices includes two pistons linked to each other.

26. (previously presented): The device of claim 21, further comprising a plurality of flow regulation and two-way damping means, wherein each of the flow regulation and two-way damping means are inserted in one of the conduits.

27. (previously presented): The device of claim 24, wherein each of the central cavity, the two side cavities, and the conduits are connected to one or more pneumatic expansion chambers through electro valves.

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28. (currently amended): The device of claim 24, wherein ~~each of the conduits includes one of said conduits two conduit portions is connected to each other another of said conduits~~ through devices that limit a volume flow between the conduit portions depending on the a pressure differential between the conduit portions, wherein said one of said conduits is connected to one of the two central actuating elements and the other of said conduits is connected to the other of the two central actuating elements.

29. (previously presented): The device of claim ~~22~~23, further comprising means for introducing pressurized gaseous or hydraulic fluid to the central cylinder devices, and for draining the central ~~devices~~ cylinder.

30. (previously presented): The device of claim 24, wherein the central resilient element is a mechanical device that provides a thrust between the two larger diameter pistons of the central cavity.

31. (currently amended): The device of claim 24, wherein ~~each of the conduits includes two conduit portions one of said conduits is shunt connected to each other another of said conduits~~ such that a pressure increment compresses a resilient or pneumatic element that allows fluid to flow from said one of the conduits portions to the other conduit portions, wherein said one of said conduits is connected to one of the two central actuating elements and the other of said conduits is connected to the other of the two central actuating elements.

32. (previously presented): The device of claim 24, further comprising passive or active regulating valves inserted in each of the conduits.

33. (currently amended): The device of claim 19, wherein at least one of the wheels sets of at least one wheel is a device that allows traveling movements having treads.